Via email to MLPA comments

March 9, 2006

Chair Philip Isenberg and
Members of the MLPA Blue Ribbon Task Force
c/o California Resources Agency
1416 9th Street #1311
Sacramento, CA 95814

**RE: Comments on SAT Analysis of Alternatives**

Dear Chair Isenberg and Members of the MLPA Blue Ribbon Task Force:

We at NRDC and WWF were disappointed to learn that the analysis provided by Dr. Botsford at the last BRTF meeting has not been conducted on the current versions of the MPA packages. His review added important information to the overall analysis. We are writing to summarize why this kind of analysis matters. We urge that this informative review be included with the other types of scientific analyses as the Central Coast MPA network packages move forward over the next few months, and as the planning process moves to other regions.

Dr. Botsford's analysis contributes to the overall MPA package review in several important ways. First, it reinforces the expectation (inherent in the Master Plan Framework) that following the SAT Guidelines will likely result in much more functional networks than if the guidelines are not followed. The results of the Botsford analysis confirm that the Framework Guidelines are scientifically appropriate and that decision makers should choose a preferred alternative that adheres closely to the Guidelines. Botsford's work shows a clear relationship between following the Guidelines for size (including area), spacing and representative habitat, on the one hand, and sustaining persistent populations of marine life on the other. In fact, his analysis is the only one that links decisions about network design directly to results like population persistence and sustainability—factors that determine whether a specific network design is likely to meet goals 2 and 6 which call for sustaining and rebuilding marine life populations and network design.

Botsford's analysis also addresses an issue about which fishermen have repeatedly expressed concern: the relationship between fishery management regulations and marine protected areas. It thus provides useful information not available from an analysis focused just on consistency with the Guidelines. Fishermen have made the case, for example, that the type of fishery management measures that are in place should influence MPA size or design. A substantial scientific literature demonstrates the complementary nature of MPAs and fishery management measures,[1] and the

[1] See for example Stefansson, Gunnar, and Andrew A. Rosenberg, 2005. Combining control measure for more effective management of fisheries under uncertainty: quotas, effort limitation and protected areas, Phil. Trans. R. Soc. B. 360, 133-146, and Roberts, Callum M., Julie P. Hawkins and Fiona R. Gell, 2005. The role of marine reserves in achieving sustainable fisheries, Phil. Trans. R. Soc. B. 360, 123-132.

MLPA calls for MPAs for purposes other than fishery management. However, for purposes of goal 2—sustaining and rebuilding marine life populations—there are legitimate questions about how fishery management measures and MPAs affect each other.

Dr. Botsford's analysis of rocky habitat addresses this issue head-on, demonstrating how some central coast MPA network designs would significantly increase the persistence of fish populations, and would likely produce benefits that spill over to areas outside MPAs. Other packages (January versions) failed to produce those benefits. Botsford's results reflect consideration not just of proposed MPAs, but of fishery management measures currently in place. His analysis thus addresses concerns raised by fishermen in the Channel Islands process that the scientific analyses of the Channel Islands MPA packages did not take existing fishery management measures into account.

Dr. Botsford presented the concepts underlying his methodology to the BRTF in a public meeting early in the process as well as in SAT meetings. He has presented his research and modeling at Pacific Fishery Management Council meetings. And he has published descriptions of the approach and models in a prestigious, peer reviewed journal.[2] His methodology also uses, extends, or builds on results from many other peer reviewed articles (see list attached at the end of this letter). In short, his methodology has been thoroughly aired and scrutinized.

In summary, Dr. Botsford's review takes an integrative and quantitative look at how the packages sustain marine life populations and achieve network connectivity, i.e. how they meet MLPA goals 2 and 6. The analysis of the Framework Guidelines, in contrast, assesses consistency with the goals by separating the network concept into simplified component parts of size and spacing. The two approaches work together to provide a complete picture. Botsford's analysis adds yet another dimension by taking into account existing fishery management measures, as no other analytical tool in the process does. If this type of analysis is not done on the latest generation of alternatives, essential information on how well Package S and revised versions of other packages sustain fish populations and function as a network will not be available.

We understand that this kind of analysis—combining sustainability, larval dispersal, and fishing practices outside protected areas—is labor intensive. But because of its unique contributions, we hope you will encourage its inclusion as a tool for analysis of the Central Coast MPA network packages alternatives as they move forward in this process in the next few months, and for evaluation of proposals in other regions as MPLA planning progresses.

Thank you for the opportunity to comment.

Sincerely,

Karen Garrison
Natural Resources Defense Council

Michael Osmond
World Wildlife Fund

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[2] Botsford, L.W., Hastings, A., and Gaines, S.D. 2001. Dependence of sustainability on the configuration of marine reserves and larval dispersal distance Ecology Letters 4: 144-150.

**Additional Citations Relevant to Dr. Botsford's Analysis**

Morgan, L.E. and L.W. Botsford. 2001. Managing with reserves: modeling uncertainty in larval dispersal for a sea urchin fishery. Pp. 667-684 in Proceedings of the Symposium on Spatial Processes and Management of Marine Populations, University of Alaska Sea Grant, 720 pp.

Lockwood, D.L., A. Hastings and L.W. Botsford.. 2002. The effects of dispersal patterns on marine reserves: does the tail wag the dog? Theoretical Population Biology 61: 297-309.

Gerber, L.R., S.J. Andelman, L.W. Botsford, S.D. Gaines, A. Hastings, S.R. Palumbi and H.P. Possingham. 2003. Population models for marine reserve design: A retrospective and prospective synthesis. Ecological Applications 13: S47-S64.

Botsford, L.W., F. Micheli and A. Hastings. 2003. Principles for the design of marine reserves. Ecological Applications 13: S25-S31.

Botsford, L.W., D. M. Kaplan and A. Hastings. 2004. Sustainability and yield in marine reserve policy. American Fisheries Society Symposium 42: 75-86.

Hilborn, R., K. Stokes, J-J. Maguire, T. Smith, L.W. Botsford, M. Mangel, J. Orensanz, A. Parma, J. Rice, J. Bell, K.L. Cochrane, S. Garcia, S.J. Hall, G.P. Kirkwood, K. Sainsbury, G. Stefansson and C. Walters. 2004. When can marine reserves improve fisheries management? Ocean and Coastal Management 47: 197-205.

Botsford, L.W. 2005. Potential contributions of marine reserves to sustainable fisheries: recent modeling results. Bulletin of Marine Science 76: 245-259.

Kaplan, D.M. and L.W. Botsford. 2005. Effects of variability in spacing of coastal marine reserves on fisheries yield and sustainability. Canadian Journal of Fisheries and Aquatic Sciences 62: 905-912.

Botsford, L.W. and A.M. Parma. 2005. Uncertainty in marine management. Pp. 375-392 in E. Norse and L.Crowder,(eds). Marine Conservation Biology: the science of maintaining the sea's biodiversity. Island Press, Covelo. 470 pp.

Botsford, L.W. and A. Hastings. 2006. Conservation dynamics of marine metapopulations with dispersing larvae. Ch 12 in Marine Metapopulations, edited by P. Sale and J. Kritzer. (in press)